

THE PEARL FISHERIES OF CEYLON.<sup>1</sup>

THE important series of reports on the pearl-oyster fisheries and on the marine biology of Ceylon, prepared under the direction of Prof. Herdman, which is being published by the Royal Society at the request of the Colonial Government, continues to grow both in size and value. Parts iii. and iv. have been recently issued, and although in the preface to part iii. Prof. Herdman expresses the hope that the whole will be completed in four parts, this has not proved possible, and a fifth part is now contemplated, to contain the concluding sections of the pearl-oyster work, several more supplementary reports of a faunistic character, and a general discussion of the faunistic results.

The two parts of the pearl-oyster report now under review give a summary of the results of the more recent investigations and inspections carried out by Mr. Hornell on the banks in the Gulf of Manaar, together with an account of the pearl fishery of 1905, which proved to be far in excess of any recorded fishery, both in the number of men and boats engaged, and in the quantity and value of the oysters taken, the nearest approach to it being the fishery of the previous year, 1904.

Prof. Herdman and Mr. Hornell have been exceedingly fortunate in being able, so soon after the commencement of their investigations, to study the exact conditions under which these two most successful fisheries have been carried out, and although they state that it does not seem likely that the 1905 results will be rivalled by any prospective fishery of the oysters now in sight upon the grounds, yet the knowledge and insight into the nature of the factors leading to a great and profitable fishery which have been obtained will be of the very highest value in suggesting rational measures for the future control and improvement of the beds; and a careful perusal of Prof. Herdman's reports leaves little doubt that in the case of these pearl-oyster beds, practical measures carried out upon a sufficiently large scale under adequate scientific control will be capable of effectively preventing, in most years, such total failures of the fishery as have been so often recorded in the past, and of ensuring to those engaged in the work a much more certain and uniform return for the labour and capital employed.

The investigations already made show clearly that the different beds or "paars" are subject to very different conditions, and whilst some, which are specially favourable for the growth and development of the oysters, are liable to receive only a small and inadequate fall of "spat," others almost invariably become covered at the breeding season with an abundant supply of the young brood. Since, however, the latter beds are situated further seawards and close to the deeper

water, the young brood is frequently, if not generally, destroyed by the action of currents or by being overwhelmed by sand, so that the oysters never attain maturity. These circumstances naturally suggest that the transplantation of young brood oysters in large quantities from the outer exposed beds to the inner ones, which are favourable for their growth and development, will be a highly profitable operation in those years when the inner beds do not receive a natural fall of spat. Such transplantation constitutes one of the principal recommendations which Prof. Herdman and Mr. Hornell make for the development of the fishery, and work on these lines has already been commenced, although in 1905 it was not particularly called for, excepting on the grounds actually cleared during the fishing of the year, owing to a very extensive natural fall of spat on all the beds which had taken place in the autumn of 1904.

Other practical measures which are recommended include "cultching," or the deposit of suitable solid material, such as shells or broken stone, to which the young oysters can attach themselves, the thinning out of overcrowded beds, and the cleaning of the oyster

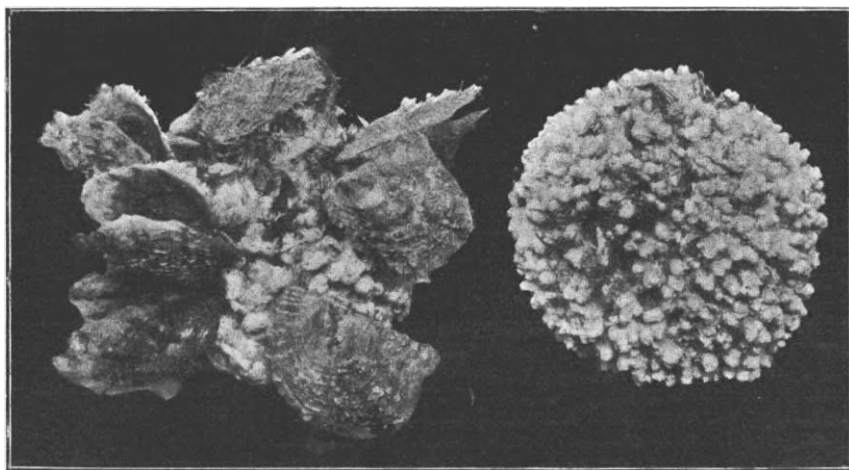


FIG. 1.—Natural cultch (Lithothamnion), and, to the left, a similar Nullipore ball with a dozen young pearl oysters attached. From "Report to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Manaar."

banks by means of the dredge, thereby removing in as large numbers as possible such enemies of the oysters as starfishes, and also other animals which would compete with the oysters for the available supply of food.

If we may venture upon a word of suggestion, we would express a hope that in the concluding volume Prof. Herdman will furnish us with a concise and sufficient summary of the whole of the pearl-oyster reports, since from the nature of the circumstances in which the series has been produced it is a little difficult to extract from them the essential features of the valuable work accomplished. We wander along pleasantly enough with Prof. Herdman on his explorations in the Gulf of Manaar, and accompany Mr. Hornell with pleasure during his inspections of the pearl banks from year to year; we traverse many an agreeable by-way under Mr. Hornell's direction, and not infrequently retrace our steps along the same paths with Prof. Herdman for our guide; we are allowed to see, as it were, the ideas gradually developing in the minds of the two investigators, and we watch with interest the new facts and suggestions of Mr. Hornell's various letters and reports becoming gradu-

<sup>1</sup> "Report to the Government of Ceylon on the Pearl-Oyster Fisheries of the Gulf of Manaar." By Prof. W. A. Herdman, F.R.S. With Supplementary Reports upon the Marine Biology of Ceylon by other Naturalists. Part iii., pp. viii+323 and plates; and part iv., pp. xvi+242 and plates. (Published at the request of the Colonial Government by the Royal Society, London, 1905.)

ally assimilated into Prof. Herdman's general scheme—all of which would be entertaining enough on a warm afternoon in summer, when we lay on some grassy cliff within sound of the sea, but is, it must be confessed, a little trying to busy individuals anxious to arrive at the kernel of the business in hand.

Of the supplementary reports in parts iii. and iv. the most important is probably Prof. Dendy's monograph on the sponges, which occupies some two hundred pages and is illustrated with sixteen plates. Prof. Dendy describes 146 species from Prof. Herdman's collection, of which 77 are new, and he considers that the most striking feature of the sponge-fauna of Ceylon, next to its richness, is its close relationship with that of Australia and the adjacent islands. On the other hand, it differs considerably from the sponge-fauna of the Red Sea, as well as from that of the south and east coasts of Africa.

In the case of the Alcyoniidæ, on the other hand, Prof. Arthur Thomson notes that there is a great difference between the Ceylon collections and those made off the Maldives by Mr. Gardiner and off New Britain and New Guinea by Dr. Willey.

It is impossible to refer in detail to all the memoirs in these volumes, which contain descriptions of a great number of new or little-known species, and it would be premature to attempt to anticipate the general discussion on the fauna of Ceylon which Prof. Herdman promises for the concluding part of the report. All the memoirs are well illustrated with a number of lithographic plates, of which the very beautiful series accompanying Mr. E. T. Browne's account of the Medusæ may be specially mentioned as doing credit to artist and lithographer alike.

#### THE ABORIGINES OF UNEXPLORED NEW GUINEA.<sup>1</sup>

IN this work Mr. A. E. Pratt gives an account of the time he, with his son, a youth of seventeen, spent in New Guinea collecting zoological specimens during the years 1901-3. A short visit was paid to the Dutch settlement of Merauke, newly established among the Tugeri tribes of Netherlands New Guinea to check the raids into British territory of these enterprising savages, but owing to the unsettled condition of the country no attempt to leave the settlement was made. Mr. Pratt then shifted his quarters to Port Moresby, in British territory, whence moving to Yule Island he organised his expeditions to the mountainous hinterland of the Mekeo district of the Central Division, where almost the whole of his time was spent and where his collections were principally made. A large number of new Lepidoptera, a new fish, and a couple of new reptiles rewarded Mr. Pratt's efforts; but although the object of the expedition was to collect zoological and botanical specimens, Mr. Pratt devotes little space in his book to natural history, its bulk being given to a gossiping description of the author's journeyings, with remarks, too often inaccurate, on the natives he came in contact with.

Mr. Pratt on p. 291 points out that he "cannot pretend to be a trained ethnologist . . ." while his "notes, too, were fragmentary . . . owing to the stress of . . . journeyings and the pressure of work . . ."

In these circumstances it is easy to forgive the omission of any mention of many problems of the greatest interest, e.g. the provenance of the Mekeo stone adze and "pineapple" club, upon which some

light might have been thrown in the country visited by Mr. Pratt in his furthest journeys; but, reasonable as are these claims to consideration and forbearance, and difficult and trying as the present writer knows the Mekeo hinterland to be, they do not palliate the publication of such a mass of misstatements and inaccuracies as occur in this book, and are absolutely no excuse for such apparent "faking" of photographs or drawings as produce the ridiculous results shown in the plates facing pp. 168, 262, and 268.

Again, with a perversity that is as determined as it is misplaced, in the map given at the beginning of the volume a number of such well-known Mekeo villages as Aipiana, Inawi, and Rarai are bodily transferred from the right to the left bank of the St. Joseph River, to which Nara village is shifted some twenty miles northwards of its actual site.

Certain of the more glaring inaccuracies in print and picture may now be specified.

The description on p. 71 of Motu pot-making is inaccurate, nor are "several hundred large dug-out canoes brought together and moored side by side at the landing stages in groups of six or seven" (p. 72) to form the lakatoi used on the annual Motu trading expedition to the Papuan Gulf. The present writer has seen many Motu dances, and in 1903 watched the departures of a number of lakatoi from Port Moresby, but certainly never saw a Motu girl "spin round with a dizzying rapidity," and finds it difficult to believe that Mr. Pratt did; while Mr. Pratt's statement is not borne out by the plate, obviously a photograph, he quotes in support of it.

The plate facing p. 168, with its attached legend, "A piebald tribe: The Motu-Motu people of Hoods Bay . . ." constitutes perhaps the most grotesquely erroneous statement in the book, and is not unworthy of an imaginative traveller of the fifteenth century. The plate shows two natives, irregularly spotted with patches of white, wearing a form of perineal bandage which is not worn at Hulaa or anywhere on the Hood Peninsula; and the accompanying letterpress is scarcely less frankly imaginative; "the piebald people are one of the mysteries of New Guinea," says Mr. Pratt, "and their origin is unexplained." The origin of a piebald tribe in Hood Bay is pretty obviously in the fertile imagination of the author, who calls the tribe he has brought into existence the Motu-Motu, this as a matter of fact being the Motu name for the Toaripi of the Papuan Gulf living about 150 miles west of Hood Bay.

Of course "albinos," though they never have pink eyes, occur sporadically all over New Guinea, and are particularly abundant at Hulaa, where there are at least four of these "albinotic" individuals. But apart from elderly folk, in whom leucoderma of the hands and feet, spreading to the forearm and leg, is by no means rare all over British New Guinea, the writer, who has twice visited Hulaa, knows of but one case of partial albinism, a child of about eight years of age belonging to the Sinaugolo, a tribe in no way closely related to the Hulaa folk.

The astounding and wildly unnatural plates which face pp. 262 and 268 cannot be passed without remark. A glance at the latter plate will convince anyone that it represents no tropical jungle, while the whole story of the fishing-nets spun by spiders on bamboo loops erected for this purpose in the jungle, which these two plates illustrate, seems to be a far-off reminiscence of the kite-fishing with a bait of spider's web which skips along the surface of the water practised in the D'Entrecasteaux and other archipelagoes off south-eastern British New Guinea. There are many other inaccuracies and misstatements in the

<sup>1</sup> "Two Years among New Guinea Cannibals." By A. E. Pratt, with Notes and Observations by his Son, H. Pratt. Pp. 360; illustrated. (London: Seeley and Co., Ltd., 1906.) Price 16s. net.